PATENT ABSTRACTS OF JAPAN

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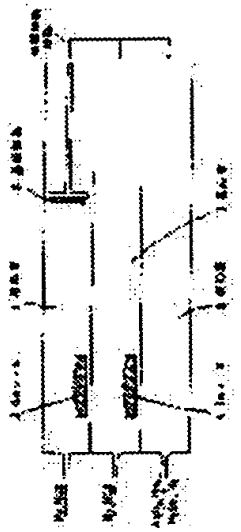
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(54) EPITAXIAL GROWTH METHOD FOR ATOMIC LAYER OF III-V COMPOUND SEMICONDUCTOR

(57)Abstract:
PURPOSE: To make it possible to grow high quality regular mixed crystals and a superlattice structure, by forming a group III element absorbing layer on a substrate crystal, then repeating the supplying process of a group VI element for a specified time, and thereafter supplying the chlorides of a group V element and a group III element alternately.
CONSTITUTION: A substrate crystal 6 is put in a reaction chamber 5. The growing temperature is increased in a PH3 stream. HCl is supplied in the reaction chamber 3. After a specified time, the crystal is moved into a reaction chamber 3. The crystal is exposed to InCl for five seconds and the InCl is absorbed. Then the crystal 6 is returned into the reaction chamber 5. The surface is exposed to an H2Se atmosphere for five seconds. The crystal 6 is moved into the reaction chamber 3. This cycle is repeated by several tens of times. The movement of crystals 6 is repeated in the sequence of InCl-AsH3-GaCl-AsH3. A GaAs/InAs regular mixed crystal having high resistance is grown. Then a non-doped GaAs/InAs regular mixed crystal is grown. Thus the high quality regular mixed crystals and a superlattice structure can be grown.



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